

nucleic acid of said genome, said second primer is complementary to a region of nucleotides of the strand of DNA complementary to said nucleic acid of said genome, wherein said regions of nucleotides are separated by about 100 to about 1100 base pairs when said complementary strands are hybridized to form one double-stranded nucleic acid, and said primers are selected from the group of nucleotides oriented in the 5' to 3' direction consisting of:

*Sub 3*  
  
  
SEQ ID NO:68;

nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli; and

nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), and 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli;

- b) introducing said amplified nucleotide sequence into a vector;
- c) transforming a host cell with said vector;
- d) placing said transformed host cell in culture; and
- e) recovering said polypeptide from said culture.

28. (Amended) A polypeptide fragment of a viral protein encoded by a nucleotide sequence from a viral genome selected from the group consisting of HIV-1, HIV-2, and SIV and expressed by a method comprising:

a) amplifying the nucleic acid encoding said polypeptide with at least two primers, wherein said first primer is complementary to a region of nucleotides of the nucleic acid of said genome, said second primer is complementary to a region of nucleotides of the strand of DNA complementary to said nucleic acid of said genome, wherein said regions of nucleotides are separated by about 100 to about 1100 base pairs when said complementary strands are hybridized to form one double-stranded nucleic acid, and said primers are selected from the group of nucleotides oriented in the 5' to 3' direction consisting of:

MMy5: CCA ATT CCC ATA CAT TAT TGT GCC CC (SEQ ID NO:46);

MMy5a: GGG GCA CAA TAA TGT ATG GGA ATT GG (SEQ ID NO:47);

MMy6: AAT GGC AGT CTA GCA GAA GAA GA (SEQ ID NO:48);

MMy7: ATC CTC AGG AGG GGA CCC AGA AAT T (SEQ ID NO:49);

MMy7a: AAT TTC TGG GTC CCC TCC TGA GGA T (SEQ ID NO:50);

MMy8: GTG CTT CCT GCT GCT CCC AAG AAC CC (SEQ ID NO:51);  
MMy8a: GGG TTC TTG GGA GCA GCA GGA AGC AC (SEQ ID NO:52);  
MMy9: ATG GGT GGC AAG TGG TCA AAA AGT AG (SEQ ID NO:53);  
ATG GGT GGC AAA TGG TCA AAA AGT AG (SEQ ID NO:68);  
MMy9a: CTA CTT TTT GAC CAC TTG CCA CCC AT (SEQ ID NO:54);  
MMy78: TAT TAA CAA GAG ATG GTG G (SEQ ID NO:55);  
MMy89: CCA GCA AGA AAA GAA TGA A (SEQ ID NO:56); and  
MMy89a: TTC ATT CTT TTC TTG CTG CTG G (SEQ ID NO:57);  
b) introducing said amplified nucleotide sequence into a vector;  
c) transforming a host cell with said vector;  
d) placing said transformed host cell in culture; and  
e) recovering said polypeptide from said culture.

34. (Amended) A purified polynucleotide that encodes a polypeptide, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;  
nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), or 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), or nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), or 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), or 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590

(SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), or 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli; and nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), and 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), or 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli.

35. (Amended) The purified polynucleotide of claim 34, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;  
nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), or 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), or 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal; and

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), or 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli.

36. (Amended) The polynucleotide according to claim 35, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;

nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal; and

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli.

37. (Amended) The polynucleotide according to claim 34, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;

nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli; and

*C*  
FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
[www.finnegan.com](http://www.finnegan.com)

*C2*  
*Conclu*

nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), and 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli.

*C3*

Please add new claims 38-48 as follows:

--38. A polypeptide fragment of a viral protein encoded by a nucleotide sequence from a viral genome selected from the group consisting of HIV-1, HIV-2, and SIV and expressed by a method comprising:

a) amplifying the nucleic acid encoding said polypeptide with at least two primers, wherein said first primer is complementary to a region of nucleotides of the nucleic acid of said genome, said second primer is complementary to a region of nucleotides of the strand of DNA complementary to said nucleic acid of said genome, wherein said regions of nucleotides are separated by about 100 to about 1100 base pairs when said complementary strands are hybridized to form one double-stranded nucleic acid, and said primers are selected from the group of nucleotides oriented in the 5' to 3' direction consisting of:

SEQ ID NO:68;

nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli;

nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), and 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli; and

*CB*  
a nucleotide sequence that is not identical to anyone of SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, or SEQ ID NO:68, but is nonetheless capable of hybridizing with a nucleotide sequence of the *env* gene of HIV-1 Bru, HIV-1 Mal, and HIV-1 Eli;

- b) introducing said amplified nucleotide sequence into a vector;
- c) transforming a host cell with said vector;

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

- d) placing said transformed host cell in culture; and
- e) recovering said polypeptide from said culture.

39. A polypeptide fragment of a viral protein encoded by a nucleotide sequence from a viral genome selected from the group consisting of HIV-1, HIV-2, and SIV and expressed by a method comprising:

a) amplifying the nucleic acid encoding said polypeptide with at least two primers, wherein said first primer is complementary to a region of nucleotides of the nucleic acid of said genome, said second primer is complementary to a region of nucleotides of the strand of DNA complementary to said nucleic acid of said genome, wherein said regions of nucleotides are separated by about 100 to about 1100 base pairs when said complementary strands are hybridized to form one double-stranded nucleic acid, and said primers are selected from the group of nucleotides oriented in the 5' to 3' direction consisting of:

MMy5: CCA ATT CCC ATA CAT TAT TGT GCC CC (SEQ ID NO:46);  
*C 3*  
MMy5a: GGG GCA CAA TAA TGT ATG GGA ATT GG (SEQ ID NO:47);  
MMy6: AAT GGC AGT CTA GCA GAA GAA GA (SEQ ID NO:48);  
MMy7: ATC CTC AGG AGG GGA CCC AGA AAT T (SEQ ID NO:49);  
MMy7a: AAT TTC TGG GTC CCC TCC TGA GGA T (SEQ ID NO:50);  
MMy8: GTG CTT CCT GCT GCT CCC AAG AAC CC (SEQ ID NO:51);  
MMy8a: GGG TTC TTG GGA GCA GCA GGA AGC AC (SEQ ID NO:52);  
MMy9: ATG GGT GGC AAG TGG TCA AAA AGT AG (SEQ ID NO:53);  
ATG GGT GGC AAA TGG TCA AAA AGT AG (SEQ ID NO:68);  
MMy9a: CTA CTT TTT GAC CAC TTG CCA CCC AT (SEQ ID NO:54);

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

MMy78: TAT TAA CAA GAG ATG GTG G (SEQ ID NO:55);  
MMy89: CCA GCA AGA AAA GAA TGA A (SEQ ID NO:56);  
MMy89a: TTC ATT CTT TTC TTG CTG G (SEQ ID NO:57); and  
a nucleotide sequence that is not identical to anyone of SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, or SEQ ID NO:68, but is nonetheless capable of hybridizing with a nucleotide sequence of the env gene of HIV-1 Bru, HIV-1 Mal, and HIV-1 Eli;

b) introducing said amplified nucleotide sequence into a vector;  
c) transforming a host cell with said vector;  
d) placing said transformed host cell in culture; and  
e) recovering said polypeptide from said culture.

40. An antibody capable of binding to the polypeptide of claims 38 or 39.

41. A method for the *in vitro* diagnosis of the infection of a mammal by a virus of the HIV-1, HIV-2, or SIV type, said virus comprising at least one polypeptide antigen, said method comprising placing a biological sample taken from said mammal in contact with antibody according to claim 40, and detecting the immunological complex formed between said antigen and said antibody.

42. A kit for the diagnosis of infection of a mammal by a virus of the HIV-1, HIV-2, or SIV type, said kit comprising an antibody according to claim 40 and reagents for the detection of the immunological complex formed between said antibody and said antigen.

43. A composition comprising at least one polypeptide according to claim 38 in combination with a pharmaceutically acceptable vehicle.

44. A composition comprising at least one polypeptide according to claim 39 in combination with a pharmaceutically acceptable vehicle.

45. A purified polynucleotide that encodes a polypeptide, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;

*C3*  
nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the env gene of HIV-1 Bru, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), or 8224-8242 (SEQ ID NO:56) of the env gene of HIV-1 Bru;

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the env gene of HIV-1 Bru, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), or nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the env gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231

(SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), or 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), or 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;

C3  
nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), or 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli;

nucleotides 6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51), 8812-8787 (SEQ ID NO:54), and 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides

6885-6860 (SEQ ID NO:47), 7330-7306 (SEQ ID NO:50), 7800-7775 (SEQ ID NO:51),  
8812-8787 (SEQ ID NO:54), or 8185-8167 (SEQ ID NO:57) of a nucleic acid sequence  
complementary to the *env* gene of HIV-1 Eli; and

a nucleotide sequence that is not identical to anyone of SEQ ID NO:46, SEQ ID  
NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52,  
SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, or SEQ  
ID NO:68, but is nonetheless capable of hybridizing with a nucleotide sequence of the  
*env* gene of HIV-1 Bru, HIV-1 Mal, and HIV-1 Eli.

46. The purified polynucleotide of claim 45, wherein the polynucleotide is  
selected from the group consisting of:

SEQ ID NO:68;

*C3*  
nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384  
(SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647  
(SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru, or a  
nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of  
nucleotides nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-  
7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-  
7647 (SEQ ID NO:55), or 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373  
(SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231  
(SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal, or a  
nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of  
nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

03

ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), or 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal; nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli, or a nucleotide sequence of a virus of the HIV-1 group that corresponds to any one of nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), or 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli; and a nucleotide sequence that is not identical to anyone of SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, or SEQ ID NO:68, but is nonetheless capable of hybridizing with a nucleotide sequence of the *env* gene of HIV-1 Bru, HIV-1 Mal, and HIV-1 Eli.

47. The polynucleotide according to claim 46, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;  
nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru; nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6860-6885 (SEQ ID NO:46), 7010-7032 (SEQ ID NO:48), 7306-7330 (SEQ ID NO:49), 7775-7800 (SEQ ID NO:52), 8787-8812 (SEQ ID NO:53), 7572-7590 (SEQ ID NO:55), and 8167-8185 (SEQ ID NO:56) of the *env* gene of HIV-1 Eli; and a nucleotide sequence that is not identical to anyone of SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:56, or SEQ ID NO:68, but is nonetheless capable of hybridizing with a nucleotide sequence of the *env* gene of HIV-1 Bru, HIV-1 Mal, and HIV-1 Eli.

48. The polynucleotide according to claim 45, wherein the polynucleotide is selected from the group consisting of:

SEQ ID NO:68;

nucleotides 6905-6930 (SEQ ID NO:46), 7055-7077 (SEQ ID NO:48), 7360-7384 (SEQ ID NO:49), 7832-7857 (SEQ ID NO:52), 8844-8869 (SEQ ID NO:53), 7629-7647 (SEQ ID NO:55), and 8224-8242 (SEQ ID NO:56) of the *env* gene of HIV-1 Bru;

nucleotides 6930-6905 (SEQ ID NO:47), 7384-7360 (SEQ ID NO:50), 7857-7832 (SEQ ID NO:51), 8869-8844 (SEQ ID NO:54), and nucleotides 8242-8224 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Bru;

nucleotides 6903-6928 (SEQ ID NO:46), 7053-7075 (SEQ ID NO:48), 7349-7373 (SEQ ID NO:49), 7821-7846 (SEQ ID NO:52), 7612-7630 (SEQ ID NO:55), 8213-8231 (SEQ ID NO:56), and 8836-8861 (SEQ ID NO:53) of the *env* gene of HIV-1 Mal;

nucleotides 6928-6903 (SEQ ID NO:47), 7373-7349 (SEQ ID NO:50), 7846-7821 (SEQ ID NO:51), 8861-8836 (SEQ ID NO:54), and 8231-8213 (SEQ ID NO:57) of a nucleic acid sequence complementary to the *env* gene of HIV-1 Mal;